

# Work Order ID 75635

**\*75635\***

Page 1

October-27-11 11:39:05 AM

Item ID: D6019-128 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Crosstube Material  
 Start Date: 27/10/2011 Start Qty: 20.00 **\*20\*** Cust Item ID:  
 Required Date: 30/04/2013 Req'd Qty: 20.00 **\*20\*** Customer:  
 Reference:

Approvals: Process Plan: M.L.J Date: 11/10/27 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6019	Rev A								

100 PURCHASING 0.00  
**\*100\***  
 Purchasing Memo 0.00  
 Purchasing Issue P/O: 15347 a) Order as per Dwg D6019 b) Material: 2.750  
 x 0.313 wall 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11)  
 seamless aluminum tube c) Minimum ultimate tensile strength = 77 ksi d)  
 Minimum tensile yield strength = 66 ks  
CL 11/11/03 20

110 Receive & Inspect for Damage & Mat'l Certs 0.00  
**\*110\***  
 Packaging Memo 0.00  
 Packaging Ensure material certification is attached  
440/5 (24)

120 QC6- Inspect dimensions to drawing 0.00  
**\*120\***  
 QC Memo 0.00  
 Quality Control Ensure Material certification comply to Dwg D6005  
See inspec sheet on last page  
27/10/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 75635****\*75635\***

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 <b>*130*</b> HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1  Memo	0.00  0.00							
140 <b>*140*</b> QC Quality Control	QC3- Inspect Part Finish  Memo	0.00  0.00							
150 <b>*150*</b> Packaging Packaging	Identify as per dwg & Stock Location: <b>LANDING GEAR</b>  Memo	0.00  0.00							

*Handwritten notes:*  
- A diagonal line is drawn through the 'Set Up/Run Hours' column for operations 130 and 140.  
- 'u/as' is written near operation 140.  
- 'NG-12-5-11' and '24' are written near operation 150.

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

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 Required Date: 30/04/2013 Req'd Qty: 20.00 **\*20\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC21- Final Inspection - Work Order Release	0.00							
<b>*160*</b>									
QC	Memo	0.00							
Quality Control									

12/5/14 *[Signature]*

*MLW* 12/05/11  
 (24)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

# Picklist Print

October-27-11 11:39:09 AM

Page 1

Work Order ID: 75635

**\*75635\***

Parent Item: D6019-128

**\*D6019-128\***

Parent Item Name: Crosstube Material

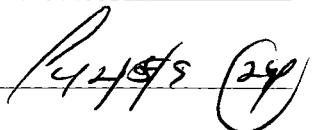
Start Date: 27/10/2011

Required Date: 30/04/2013

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP Rev.A New Issue LL

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6019-128P <b>*D6019-128P*</b> Crosstube Material		Purchased	No				Each	0.0000		20			
										**			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



**DART**

DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6019	REV. A SHEET 1 OF 1
DATE 06.11.03		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	06.11.03	NEW ISSUE	

## SPECIFICATION CONTROL DRAWING

**RELEASED**07.04.09 *[Signature]*

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT

WITHOUT NOTICE  
WORK ORDER  
NO. *75635*

*M.L.J**11110127*

### NOTES

- 1) D6019-XXX CROSSTUBE  
LENGTH

WHERE XXX IS LENGTH IN INCHES  
EG. 128" LONG TUBE: D6019-128

- 2) MATERIAL: 2.750 OD x 0.313 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.  
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi  
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:  
O.D.:  $\pm 0.006$  MEAN ( $\pm 0.012$  INCLUDING OVALITY)  
WALL:  $\pm 0.015$  MEAN ( $\pm 0.038$  INCLUDING ECCENTRICITY)  
LENGTH: XXX +0.125/-0.000  
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



Kinglist ALUnna AG

na ref. no.	44990/100
mer PO.	PO. 15347
	04.18.12

reby declare that the wooden packing material are totally free from bark and apparently

from live plant pests

**Boxmarking:**

Dart Aerospace PO. 15347
D6019 - 128
Made in Germany Dest.: Hawkesbury ONT, Canada

[illegible]

# Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

**Kunde:** Dart Aerospace Ltd.  
**Client:**

1270 Aberdeen Street  
K6A1K7 Hawkesbury, ON Canada

**Zeugnisnummer:** 438/12  
**Cert No. / No. du certificat:** PO 15347

**Bestellnummer:**  
**Order No. / No. de commande** 44990/100

**Auftrag:**  
**Our Reference/Notre Reference:**

**Produkt:**  
**Product / Produit:**

Rohre nahtlos gepresst  
Tubes seamless extruded

**Spezifikation:**  
**Specification:**

AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6007

**Werkstoff:**  
**Alloy/Alliage:**

7075

**Zustand:**  
**Temper/État** T 6511

**Abmessung**  
**Size / Dimension**

2,750 INCH x 2,124 INCH x 0,313 INCH x 128,000 INCH  
D6019-128 2.750 X 0.313 X 128

**Kennzeichnung**  
**Marking/Marquage:**

Cert.No. 438/12 - ALUnna - 7075 - T6511 - Cast No. ... - AMS - QQ - A- 200/11 - 2.750" OD x 0.313" Wall - Heat Lot  
No. 1401164 - ALUnna Order Conf.No. 44990/100-1 - P.O. 15347

**Lieferung**

**Delivered Material / Matériel délivré:**

pcs.

lbs

**Country of Manufacture: Germany**

24

761

Products are in accordance with applicable RoHS

Elemente ohne Grenzwerte:

einzel max. 0,05 %, insgesamt 0,15 %

## 1. Chemische Analyse

## Chemical Analysis / analyse chimique

Charge/ Cast No.	min. max.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
7225/12		0,111	0,187	1,437	0,047	2,415	0,209	5,968	0,043	0,004	0,0309	0,0001	0,0014	0,0002

**Hydrogen content:** 0,08

**ccm/100 g Al** Elements without indication < 0,01 %

**country of melt manufacturer: Germany**

7400/12		0,097	0,189	1,441	0,064	2,465	0,200	5,820	0,041	0,003	0,0321	0,0001	0,0016	0,0001
---------	--	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------	--------	--------

**Hydrogen content:** 0,10

**ccm/100 g Al** Elements without indication < 0,01 %

**country of melt manufacturer: Germany**

## 2. Mechanische Eigenschaften

## Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Cast/Heat/ pcs.
min. max.	77,0	66,0	7,0			
1 2	86,130 85,115	78,735 78,010	9,0 8,0			7400/1401164/16 7225/1401164/8

RMS: außen 25 - max. 16,0 µ"

**Ergebnis der  
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

**Test results:**

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

**Resultats:**

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande



## EXTRUSION INSPECTION SHEET

							<b>ULTRA SONIC MEASUREMENTS</b>				
TUBE #	TOTAL LENGTH	DIA two readings	INSIDE DIA	wall thickness measured w/vern	Strightness at 12"	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4
DWG	128.00"	2.750"	2.125"	0.313"	0.010"	N/A	MIDDLE				
1	128.00"	2.753"/2.753"	2.111"	0.312"/0.329"	0.010"	N/A	64.000"	0.322"	0.315"	0.326"	0.328"
2	128.00"	2.747"/2.747"	2.108"	0.311"/0.321"	0.008"	N/A	64.000"	0.322"	0.315"	0.318"	0.329"
3	128.00"	2.747"/2.751"	2.110"	0.312"/0.321"	0.005"	N/A	64.000"	0.318"	0.324"	0.329"	0.317"
4	128.00"	2.754"/2.751"	2.109"	0.331"/0.309"	0.009"	N/A	64.000"	0.333"	0.329"	0.314"	0.314"
5	128.00"	2.751"/2.752"	2.112"	0.335"/0.305"	0.006"	N/A	64.000"	0.315"	0.328"	0.326"	0.313"
6	128.00"	2.754"/2.748"	2.110"	0.314"/0.328"	0.008"	N/A	64.000"	0.321"	0.324"	0.327"	0.317"
7	128.00"	2.754"/2.755"	2.111"	0.313"/0.321"	0.003"	N/A	64.000"	0.319"	0.313"	0.327"	0.328"
8	128.00"	2.751"/2.751"	2.110"	0.317"/0.325"	0.012"	N/A	64.000"	0.317"	0.328"	0.324"	0.319"
9	128.00"	2.750"/2.751"	2.111"	0.303"/0.331"	0.006"	N/A	64.000"	0.313"	0.327"	0.332"	0.314"
10	128.00"	2.749"/2.750"	2.111"	0.323"/0.313"	0.005"	N/A	64.000"	0.321"	0.329"	0.326"	0.312"
11	128.00"	2.749"/2.750"	2.110"	0.306"/0.329"	0.006"	N/A	64.000"	0.313"	0.321"	0.329"	0.327"
12	128.00"	2.748"/2.751"	2.106"	0.312"/0.328"	0.004"	N/A	64.000"	0.323"	0.313"	0.327"	0.327"
13	128.00"	2.751"/2.758"	2.110"	0.315"/0.325"	0.005"	N/A	64.000"	0.329"	0.326"	0.320"	0.317"
14											
15											
PART # D6019-128		P/O# 15347		BATCH # B75635		Notes:					

REFERENCE ONLY

*8/27/01*